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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

12 July 2012
DCS-NRC-000319

Subject: Docket Number 07-03098
Shaw AREVA MOX Services
Mixed Oxide Fuel Fabrication Facility
Part 21 60-Day Interim Report Notification:
Thermal Sensitization of Pipe

This letter provides information concerning an evaluation being performed by Shaw AREVA MOX Services, LLC (MOX Services) regarding a deviation identified by MOX Services. The deviation being evaluated pertains to the procurement of 1/2" (0.109 MW), Type 304L SS pipe where through independent testing MOX Services has determined that some of the pipe provided is thermally sensitized and fails ASTM A262 tests to detect susceptibility to intergranular attack (IGA). Per the MOX Services specification, the pipe is required to pass ASTM A262 testing for susceptibility to IGA. MOX Services has not concluded that this is a reportable condition in accordance with the requirements of 10CFR 21.21(d) and continued evaluation is required to determine the impact of using thermally sensitized pipe which is not in accordance with MOX Services' procurement specification.

The information required for a 60-Day Interim Report Notification per §21.21(a)(2) and the commitment for follow-on action is provided in the Enclosure.

If you have any questions, please feel free to contact me at (803) 819-2156 or Dealis Gwyn, Licensing and Nuclear Safety Manager at (803) 819-2780.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kelly D. Trice'.

Kelly D. Trice, President and COO

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Enclosure:

60-Day Interim Report Notification Information per §21.21(a)(2)

cc :

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Enclosure

60-Day Interim Report Notification Information per §21.21(a)(2)

60-Day Interim Report Notification Information per §21.21(a)(2)

- (i) Name and address of the individual or individuals informing the Commission.

Kelly D. Trice
President and Chief Operating Officer
Shaw AREVA MOX Services
Savannah River Site
P.O. Box 7097
Aiken, SC 29804-7097

- (ii) Identification of the facility, the activity, or the basic component supplied for such facility which fails to comply or contains a defect.

The Mixed Oxide Fuel Fabrication Facility is potentially affected by a deviation associated with the procurement of 1/2" (0.109 MW), Type 304L SS pipe where some of the delivered pipe has failed the Practice A and C examinations of ASTM A262.

- (iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

The 1/2" (0.109 MW), Type 304L SS pipe is being supplied to MOX Services as a basic component by BF Shaw.

- (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

Through independent testing, MOX Services has identified that one heat (Heat #41789) of 1/2" 304L SS pipe supplied by BF Shaw fails the ASTM A262 Practice A test required by MOX Services' procurement specification. As a follow-up to the failed Practice A test, MOX Services had the same independent test lab perform ASTM A262 Practice C testing, and the identified pipe also failed this test. Test results provided by BF Shaw with the pipe indicate that it passes the Practice A test. The pipe was manufactured by Tubacex for BF Shaw, and ASTM A262 Practice A testing was performed by Welding Testing Lab prior to BF Shaw supplying the pipe to MOX Services. Both entities have been qualified by BF Shaw as approved suppliers.

Testing of this heat of material has since been performed twice more by the independent test lab contracted by MOX Services with failing results thus indicating that the pipe is thermally sensitized and susceptible to intergranular corrosion if utilized in an environment with electrolytic potential (e.g., nitric acid, oxalic acid). The 1/2" 304L SS pipe in question is intended for use within the aqueous polishing portion of the MFFF, where these environments exist for many processes.

Additional pipe heats from BF Shaw, as supplied by Tubacex, could be impacted and are currently being evaluated. To date, 36 of approximately 170 heats of SS pipe supplied by Tubacex through BF Shaw have been tested for thermal sensitization. Heat #41789 is the only heat to fail both practice A and C testing due to thermal sensitization. MOX Services has ceased use of this heat for fabrication of pipe spools in impacted services. Tagging and segregation will be performed once testing is completed and the

population of unacceptable piping is known. MOX Services engineering is continuing to evaluate the extent of impact the thermally sensitized pipe may have on its safety function.

- (v) The date on which the information of such defect or failure to comply was obtained.

The deviation was identified in a test report provided by Savannah River National Laboratory on May 14, 2012.

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

MOX Services does not possess information as to whether other facilities have been supplied a similar basic component by BF Shaw.

- (vii) The corrective action, which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

Condition Report CR 12-275 will document the corrective actions associated with thermally sensitized pipe. MOX Services will complete the Part 21 reportability evaluation by May 02, 2013.

- (viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

The following statement is from ASTM A262.

6.2 The etched cross-sectional areas should be thoroughly examined by complete traverse from inside to outside diameters of rods and tubes, from face to face on plates, and across all zones such as weld metal, weld-affected zones, and base plates on specimens containing welds.

Specifications should clearly indicate that micrographs should be done perpendicular to the forming direction, and should be representative of the worst case area of the cross section. In the case of heat #41789 only the inner portion of the pipe wall was sensitized to the point of ditching. A complete transverse of the cross-sectional area would have been needed to detect this condition and was apparently not done. This condition of ditching near the interior of the pipe wall was found by MOX Services when our independent lab performed an examination including a full transverse of the cross-section.

- (ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

This is not an early site permit concern.